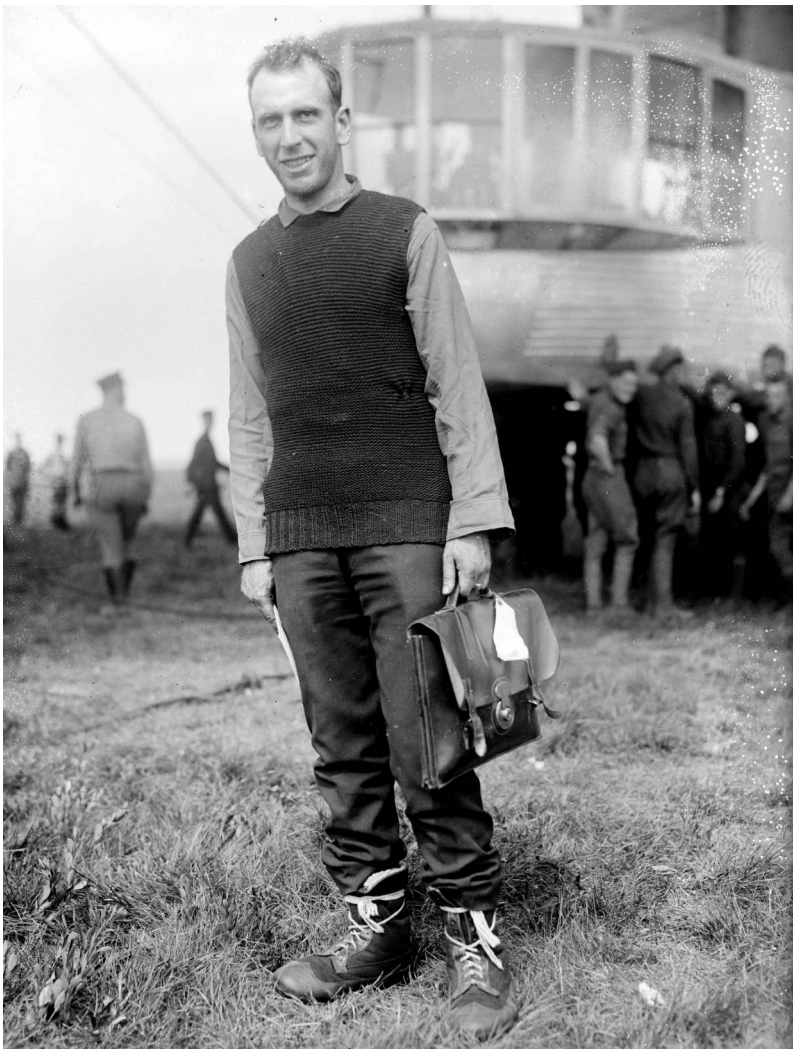
The Loss Of The U.S. Navy Dirigible U.S.S. Shenandoah ZR-1

Over Lakehurst, New Jersey, the sky was unsettled on the afternoon of September 2, 1925. At times it was almost clear; then ominous clouds would scud across the field of the Naval Air Station and disappear as quickly as they had come. The airship Shenandoah , nose to her high mooring mast, was floating gracefully with the variable breezes. Her twenty gas bags were about 91 per cent full, her tanks loaded with 9,075 pounds of water and 16,620 pounds of gasoline. Sailors were riding up the elevator to the top of the mast. The 682-foot ship – her Indian name meant "Daughter of the Stars" – was almost ready for her fifty-eighth flight, a tour of the Midwest – first, an airshow in St. Louis, Missouri, then stops in Minneapolis, Minnesota, for a state fair, and Dearborn, Michigan, before returning to Lakehurst. Everybody wanted to see the flying Navy ship.

Commander Zachary Lansdowne, the Shenandoah's skipper, had not liked the original orders for this trip. A native of Greenville, Ohio, he was familiar with the thunderstorm line squalls that swept over that part of the country during the summer, and he had officially requested that the tour be postponed. Navy officials had put it off until early September, but rejected any further delay. It would disappoint too many thousands. Besides, the Shenandoah had already flown 25,000 miles in all kinds of weather, and handled it well. What was going to play out, however, was going to seem very much like Edgar Allan Poe's fictional horror story, "A Descent Into The Maelstrom", only in almost surreal reality.



Commander Zachary Lansdowne

Now almost the entire crew of 41 officers and men, together with two observers, had gone aboard. Not far from the base of the mast, Lansdowne was talking quietly with his wife. An Annapolis graduate with considerable lighter-than-air experience before taking command of the Shenandoah, Lansdowne was a tall, rangy, rawboned man who had a reputation as somewhat of a disciplinarian aloft, but also as an understanding and affable officer who lent a sympathetic ear to the personal problems of his crew. Now he said good-by to his wile and walked toward the mast.

At 3:52 P.M. the nose cone of the ship slid gently from the socket of the mast. The dirigible lifted slowly. Water ballast streamed first from amidships, then from the tail – 2,225 pounds of it in all. The Shenandoah swung around the mast and a few minutes later headed west into the uncertain sky.

Margaret Lansdowne turned her back as the dirigible sailed out over the pine woods. So did the other wives, relatives and friends who had come to the field. It was considered bad luck to watch an airship fade out of sight.

The graceful Shenandoah was the first rigid dirigible made in America. Started in 1920 at the naval aircraft factory in Philadelphia, its construction had been held up many months by the failure of Congress to pass appropriations. The design of the Shenandoah was almost identical to that of the captured wartime German "height climber" Zeppelin, the L-49, but American navy engineers had made one great step forward. From a natural gas found in exploitable form and quantity only in the United States they had succeeded in isolating helium, so inert that it could not be set afire with a match. The airshipman's greatest fear, fire, would now be a thing of the past. But since helium had only 92.6 percent of the lifting power of the inflammable hydrogen used in German airships, a section ten meters long had been added to the middle of the Shenandoah, much to the dismay of the German Zeppelin experts who reviewed the plans. The height climber design sacrificed strength for light weight, they argued. Adding length to the already slender shape would only make the design even more fragile and susceptible to low-altitude severe weather. Finally, the bow had been strengthened to withstand the strain of mast landings, the fins and rudders had been redesigned, and a walkway for in-flight inspection had been fitted outside the envelope along the very top of the ship.

The rigid dirigible, invented by Count Ferdinand von Zeppelin, had been greatly improved upon during World War I by his German countrymen. Already it had accomplished great feats: two dirigibles, the British R-34 (with Lansdowne aboard as an American observer) and the German LZ-126, had crossed the Atlantic, and another German ship, the L-72, had been flown by French airshipmen on a nonstop, 4,500 mile trip in 118 hours and 41 minutes. Now, with the slender Shenandoah, the United States was attempting to take the lead in the international airship field.

In her first flights the Shenandoah had captured the imagination of the world. Her triumphs had been many: she had been moored to the mast of a navy tanker modified as an airship tender, the USS Patoka, at sea; she had successfully weathered a winter gale after being torn from her mast at Lakehurst; and she had made a triumphant round trip to the Pacific Coast.

Now, an hour and 26 minutes after leaving Lakehurst, she hovered over Philadelphia. Before long the Alleghenies were reached. The men off watch eased themselves into their bunks along the keel amidships.

The keel, a triangular tunnel running along inside the Shenandoah 's bottom and tapering at bow and tail, was the heart of the ship. Bisecting its base was a narrow catwalk, the other two sides of the triangle being bounded by the gas cells. These bags, pressing against restraining networks of wire and twine, were usually filled to about 85 per cent capacity at the start of a long trip. As the ship rose, the gas expanded and the bags became swollen; 4,000 feet was the critical "pressure height" – at that altitude the bags would be 100 per cent full.

Every five meters along the keel was a triangular frame of latticed girders which bound together the circular outer ribs. Each of these frames was marked with phosphorescent numbers so the men would always know where they were in the dark interior. The numbering started at the base of the ship's rudders, the first girder being called Frame o, the one farthest forward being numbered 194.75 – meaning that it was 194.75 meters (about 640 feet) from the rudders. The crew space, a plywood deck twelve feet square that served as the enlisted men's berthing, lounge and dining room, ran from Frames 100 to 105. Farther forward were the officers' quarters, virtually identical to the enlisted men's. The control car was suspended on metal struts twenty feet below Frame 160.

At midnight, as the Shenandoah's five engines propelled her westward over Wheeling, West Virginia, the sky was partially overcast. But the air was not rough. The night was warm, and the men off duty slept without blankets. Forward in the control car, the midnight weather observations had just been handed to the ship's aerologist (read = meteorologist), Lieutenant Joseph B. Anderson.

Anderson, a studious young man, remained in the control car since leaving Lakehurst, and he was to remember vividly all that happened there during the eventful hours that lay ahead. Now he began to draw up his usual midnight weather map report, and a few minutes later, getting up from his little desk, he handed it to the skipper. Lansdowne studied it for a few minutes, then nodded. From the nearby land station reports, things didn't yet seem as bad as they could be.

Lansdowne started for the ladder. "Don't call me," he said wearily, "unless something unusual comes up." The first day, with the complications of take-off, was always the hardest. He climbed up the ladder topside and was soon in his bunk.

But Lansdowne got little sleep. At 3 A.M. lightning was sighted from a storm that began to brew to the northwest, and a few minutes later he was back in the control car. The Shenandoah was making 60 knots airspeed, but zero groundspeed; no progress against a strong southwesterly head wind. Lansdowne ordered the man at the elevator controls to bring the ship down to 2,000 feet, in an effort to find a hole in the wall of wind. It was useless.

For an hour and a half the slender airship struggled westward, drifting first to port, then to starboard. At a few minutes after 5 A.M., Chief Petty Officer E. P. Allen, the elevatorman, turned to Lansdowne. "Captain," he said, a slight undertone of nervousness in his voice, "the ship has started to rise."

Officers of the USS Shenandoah on her first flight (left to right): Lieut. A.R. Houghton, Lieut. L.E. Mueller, Cdr. J.H. Klein, Lieut. C.E. Rosendahl, Lieut. Cdr. M.R. Pierce, Lieut. J.C. Arnold, Lieut. E.H. Kincaid, Lieut. H.V. Wiley, Lieut. R.J. Miller, Lieut. R.F. Tyler, Lieut. J.B. Andserson

“Check her,” said Lansdowne.

Allen turned the big elevator wheel clockwise to drive the ship down. It was obvious that the Shenandoah was not responding to the controls. Sweat covered Allen’s forehead. “She’s rising two meters per second. I can’t check her, sir.”

Lansdowne ordered engines 4 and 5 speeded up. But despite the increased power, the ship continued to rise.

“I can’t hold her down,” said Allen. There was a note of stress in his voice now. He started to pull the wheel even farther over.

Lansdowne stopped him. “Don’t exceed that angle,” he said in a calm, confident voice that reassured everyone in the cabin. “We don’t want to go into a stall.” He ordered the rudderman Chief Petty Officer Ralph Joffray to change his course to the south, in order to not deviate from the projected course plan.

Joffray tugged his wheel counterclockwise. He had to put his whole body into the effort. “Hard over, sir,” he grunted, “and she won’t take it.”

“I’ve got the flippers (elevators) down and she won’t check,” said Allen, his voice rising again.

“Don’t worry,” said Lansdowne, as if there were nothing to fear.

In spite of rudders, elevators, and motors, the ship continued to shoot up, tail elevated about fifteen degrees, and relentlessly heading westward, directly into the storm. The dirigible was rolling now like a raft in the sea.

The situation was more serious than the Shenandoah’s crew, at least for the moment, suspected. Down on the ground, in a little Noble County, Ohio town called Caldwell, a man awakened when the wind slammed the furniture around on his front porch. He went outside, looked up at the sky, and spotted the giant airship. Directly above it was a dark cloud that seemed to be in a great turmoil. It looked to him, he later told friends, “as though two storms had gone together.” And in Ava a woman, seeing the same cloud, called her husband out into the yard. “Come out and see the boiling cloud!” she cried.

What they saw was a line squall gathering directly above the ship. Formed by a clash of two opposing winds – one moist and warm, the other dry and cold – such a squall was capable of seizing the Shenandoah, twisting her in different directions, and wringing out her light metal frame. The ship’s rise was carrying her right into the squall.

All over the Shenandoah, men were on the alert. Mechanics babied their motors, which were beginning to cough and overheat; the ship’s sharp tilt was disrupting the flow of gasoline and water through their fuel-supply and cooling systems. Riggers scrambled down the keel ripping the covers off the automatic valves so the already swollen gas bags wouldn’t burst.

In the control car the atmosphere was quiet but tense. Allen called out, “Still rising two meters per second, sir!” They were at 5,500 feet, far above pressure height.

Lansdowne glanced at the altimeter and held a quick conference with his executive officer, Lieutenant Commander Lewis Hancock. Then he turned. “All right,” he said, “open the maneuvering valves.” Thousands of cubic feet of helium were valved off in the hope that this would check the Shenandoah ’s swift ascent. The sky was now solidly overcast except far to the south and southwest. Lieutenant Anderson peered ahead, trying to determine the safest course. Then, directly north of the ship and above, at an angle of 45 degrees, he saw the huge threatening cloud extending above their course to the west. If their rise didn’t stop soon, they would shoot straight into the eye of the squall.

“Rising one meter per second,” called Allen hopefully. The valving off of helium was finally taking effect. Even so, they were close to 6,000 feet and still the Shenandoah rose.

“Go up topside into the keel, Andy,” said Lansdowne to Anderson. He realized that at any moment the rise might stop and, with so much helium valved away, they would begin a fast plunge to earth. “Pass the word to stand by to slip the tanks in case of an emergency.” Lansdowne waited until Anderson had dashed up the ladder, then he ordered the valves closed.

Above the control car, Anderson carried out his orders, then started back down the ladder. Suddenly a blast of bitter-cold air rushed down the keel through the ventilating hatches, hitting him in the face. The ship had just risen into the squall and was now in the grip of two opposing forces, each wrenching it in a different direction.

The fantastic rise stopped sharply at 6,300 feet. The Shenandoah wavered for an instant and began to plunge.

Elevatorman Allen, standing near the altimeter, sounded the alarm. “The ship’s tailing!” he cried out. “She’s falling fast, very fast, sir!”

Soon no one aboard had to be told. Eardrums pounded as the Shenandoah plummeted down 25 feet a second.

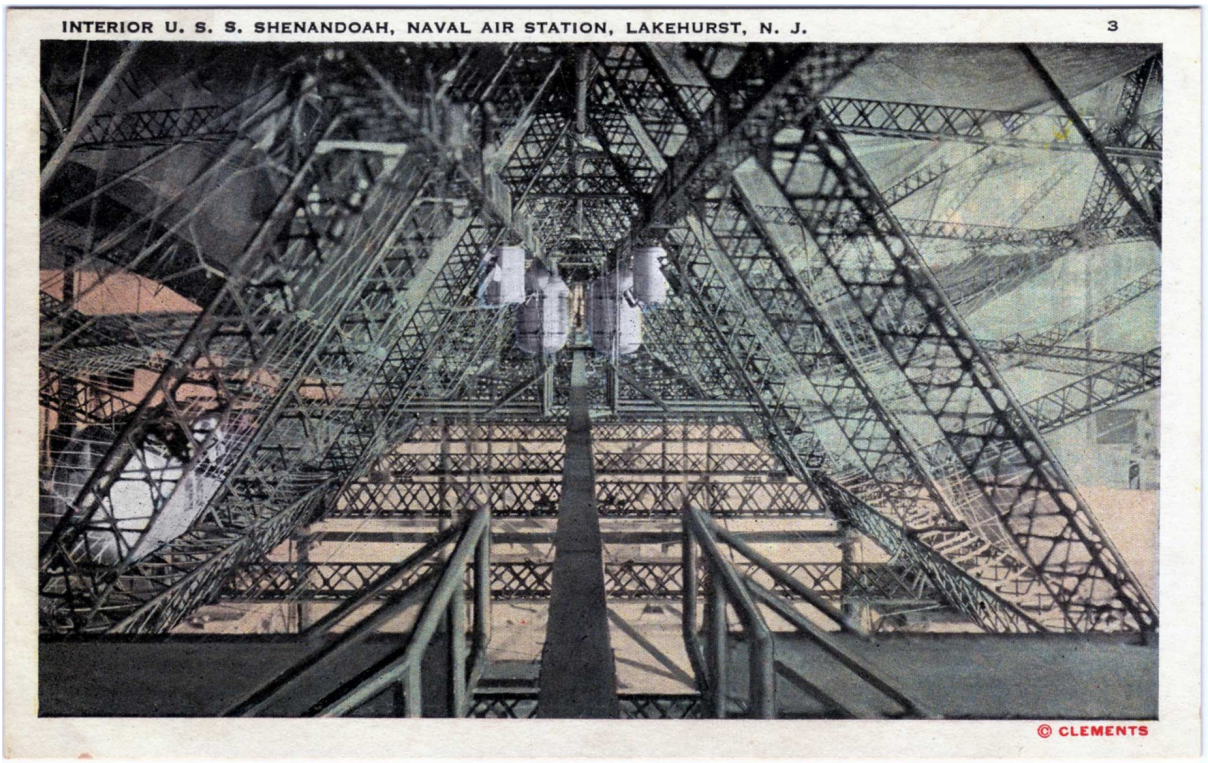
“Water ballast!” Lansdowne called out. Tons of water were dumped. The skipper then ordered the ship nosed upward.

“She’s still falling!” Allen called out.

“She’s all right, Allen,” said Lansdowne evenly. “We’ll stop her.” His self-possession once more had its calculated effect. In spite of the ship’s frightening drop, there was no panic.

In the gondolas, mechanics swore at their erratic motors. In the keel the few men still asleep were pitched from their bunks, while those on duty clung to girders for support.

Suddenly, at 2,500 feet, the ship stopped falling and leveled off. But the men were still tense, wondering what would happen now.



Lansdowne gave an order to Rudderman Joffray, so quietly that no one else heard. The ship headed south. Then the captain picked up the telephone.

Rigger Mark Donovan, near Frame 60, was the man farthest aft. When the telephone glass flashed red, he grabbed the receiver and sang out, “Sixty, Donovan.”

“How are all the cells aft?” asked Lansdowne quietly.

“Okay aft of sixty, sir. Fully intact.”

There was a slight pause. “Pass word forward,” said the skipper. “All men to emergency stations.” He hesitated a moment, then added quietly, “We are all going through this together.”

Donovan hung up and started forward. As he did, there was a weird whistle of wind and the ship surged upward, even faster than the first time.

The engine telegraphs began ringing frequently in the control car. Engines 1 and 2 were out and the mechanic on No. 3 reported it was heating up badly.

Lansdowne ordered Allen to nose the ship down as far as he could without stalling her. They were shooting up incredibly fast. The rise had to be stopped. He turned and said, “Full speed!”

The altimeter was back at 3,500 feet, Joffray was pulling at the rudder wheel, straining away, throwing his whole body into the struggle. It was a sight Anderson was never to forget. The ship began turning rapidly in a circle. The tail was suddenly thrown up and wrenched to the right. The ship had been caught by terrific opposing blasts of wind.

Suddenly there was a shrill screech, as girders began to twist and tear.

Without raising his voice Commander Hancock said, “There she goes.”

When Anderson heard the tear of girders he guessed that the Shenandoah was breaking up amidships. Then the control car began to jar and shake.

Every man in the car knew what was happening. The struts that held the big gondola to the ship were being wrenched by wind and torsion. In a matter of moments it would tear away from the ship and drop to earth. “Any man who wishes to go topside may do so”, Lansdowne said. There were no takers. These men had all signed service record documents concerning duty involving flight. They knew and understood the risks. They remained at their posts. In the radio compartment, just aft of the bridge of the control car, Chief Radio Electrician George Schnitzer, who had been having radio reception issues due to interference caused by the weather since just west of Wheeling, West Virginia, finally raised the base at Lakehurst. He sent his last message, “I am losing my seat!”

Earlier, when the girders had snapped, the ship had opened at Frame 130 like an egg being cracked from the bottom. Two men were pitched out into space. But the two sections were held together by the many control wires that ran along the bottom of the keel.

Donovan, the man farthest aft, had moved back to Frame 30 when he heard a faraway crash of breaking girders. Then the Shenandoah began to quiver, and Donovan smelled burning cloth. Nauseated, he hurried forward to Frame 40, opened a hatch, and, leaning far out, took deep, gasping breaths. Below him the ground was dim and seemed to be spinning rapidly.

Just then something snapped in the tail. A trail of sparks shot up under the keel. The main cable controls had broken loose from the elevators and rudders and were running wildly up the length of the ship.

Far forward Lieutenant Commander Charles E. Rosendahl, the ship's navigator, who had been ordered by Lansdowne to supervise the dropping of ballast, was working his way along the keel. He heard a fearful crashing and turned in time to see the bottom panel of the ship's outer covering and several of the transverse structural members of the keel cut loose along one side. He saw the severed control wires being pulled out like the guts of a fish as the control car fell, and was shocked at the sight of what was happening.

The man who had the last look at the doomed gondola and its occupants was Anderson, who had scrambled up to the catwalk just as the gondola was wrenching itself loose. He looked over his left shoulder and saw it hanging down. Suddenly the ladder he was holding on to was yanked away, and the car began its plunge to earth, carrying Lansdowne and seven others to their deaths.

Stunned, Anderson felt the catwalk and the girders on both sides of it collapsing like a house of matches. He was pulled off the catwalk, but just as he was about to drop through the great hole torn open by the control car, he managed to get hold of something. The next thing he knew he was sitting on a fragment of the catwalk suspended directly over the center of the jagged hole. A few wires were all that held him and the fragment of catwalk to the rest of the ship. He dared not make a move for fear he might topple off. He was grasped by Rosendahl and pulled to a sitting position on the catwalk, and together, they looked at each other in the horror over what they had just seen. Anderson spoke first. "The control car!" he gasped. "It just tore loose. Lansdowne, the others – they're all gone with it."

Rosendahl started to say something, but just then both men were shaken by a tremendous crash. All around them they could see aluminum girders buckling. Then there was a high-pitched, ripping scream as the fabric started tearing to shreds. Horrified yet hypnotized, they watched aghast as the gigantic airship was torn apart.

As the two officers watched, clinging desperately to struts and wires, they observed an unbelievable sight. Almost as though it were being worked by some well-planned machinery, the entire bow section in which they clung broke cleanly away from the rest of the airship and started to float away from it like a ferry leaving a dock.

At 5:35 Aviation Machinist's Mate Jones, in the gondola of engine No. 3, was greatly worried about the airship's rapid climb. Over the inter-phone he had heard the order for all crewmembers to man emergency stations, followed by a rapid succession of engine orders. Then the set went dead. He jiggled the toggle switch with no result. Now it seemed as though the entire ship was falling, faster and faster. He could hear nothing above the roar of the Packard motor, nothing except the uneven whir of the propeller blades – an indication to his trained ear that the ship was encountering unpredictable blasts of wind from many directions at the same time.

As the freefall continued, Jones crawled shakily to the hatch, slid the cover back and looked out, his face whipped by the wind. What he saw was terrifying. Above him the airship's silken skin was slashed and punctured. Twisted aluminum girders jutted through the fabric-like pins projecting out of a cushion. And the entire nose of the dirigible had completely disappeared. Down below, it was light enough to see patches of farmland as the ground swished upwared at great speed. And still engine No. 3 continued its labored whirring.

Inside what was left of the airship directly above Jones, cook John J. Hahn was trying to get up off the galley floor. A few minutes before, he had been congratulating himself on his ability to brew a tank of coffee without spilling any on the deck. Now he found himself in a jumble of cooking equipment. On all sides, fuel drums and food supplies were flying through space, crashing into struts and ripping through the galley's thin partitions.

"Did you see that? We're breaking apart!" cried Chief Gunner Cole, hanging onto a girder near the galley and pointing toward the gaping void where the nose had once been. "Frame No. 70 just broke completely in half", came the voice of Chief Aviation Pilot Masters from somewhere behind them. Masters had just come from his bunk, where he had gone after being relieved at 4:30. He was not yet aware of what had happened to the control cabin and nose. "The whole goddamned ship will break up any minute", he cried out.

"It already has", said the cook. "Now all we gotta do is pray we got enough gas left in the bags to set us down gently". Below them, through rips in the fabric, he could make out rolling hills and groves of trees and wide farmlands dotted with a few houses. "How high up are we, Chief?", he asked a few minutes later. "I guess maybe a thousand feet", replied Cole, tightening his grip around a girder as the battered main section of the Shenandoah yawed widely, whipped in dizzying arcs as it continued its fatal fall.

Of the officers and men aboard Shenandoah, 8 had been killed in the control cabin, 6 others were not yet known to have perished, 8 were floating in space in the cleanly sheared off bow section, and 18 more were fighting for their lives in the main part of the ship. Among the latter was Lieutenant Walter T. Richardson. He had gone to his bunk early the night before with an upset stomach, but had been tossed on the deck about 5 a.m. by the airship's violent motions. When he realized what had happened, he started shouted orders as fast as he could recall emergency procedures: "Yank all ballast toggles! Pass the word to all hands." Then he noticed the loose drums of fuel and crates of supplies tumbling around. "Jettison all equipment over the side."

Richardson watched drums and boxes ripping through the silken skin and disappearing below. If only the jagged girders didn't puncture the gas cells and allow precious helium to escape. Below him now he could clearly see the trees. That main part of the ship was dropping fast, blown along by the wind at about 20 knots as it began to skim the treetops. Richardson could make out a road, some buildings and even two people, frozen like statues, staring skyward.

The statues were farmer Gamara and his wife, who had been transfixed with horror ever since they spotted the great silver shape in the sky stand almost on end. They had watched the cigar-shaped gondola suddenly yank itself away from the mother ship and start plunging to earth like a bomb. They saw the cabin drop earthward and heard the shattering crash as it rammed a hillside near Ava, Ohio. Now they watched the main section descending, oblivious to the fact that it might come down right on top of them.

Trapped in the gondola of engine No. 3, which was still attached to the main framework by struts and braces, Jones had no way to escape. He made one attempt to climb the ladder to the ship's keel above him, but was nearly whipped into space by the wind. He considered for a moment whether he should shut down the engine, then decided that forward motion might give some lift to the doomed ship. He pushed the throttle as high as it would go, and the engine responded. Then he scrambled atop the gondola and hung onto the struts. The gondola itself might help break his fall when the ship hit – if only the girders in the bag above him did not fall on him and crush him to death. It seemed to him that he had hardly moved into a more secure position when the gondola glided over some bushes, plowed into the ground and tumbled him off into a patch of soft earth. A breathtaking jolt, and then he was suddenly walking along the ground. No girders or tangled silk shrouds came crushing down upon him, no flaming fuel, no smothering clouds of helium. Jones had been miraculously delivered from certain death in the stormy sky. Three of his Aviation Machinist's Mate brothers weren't so fortunate.

Lieutenant Richardson had a harder time of it, as did cook Hahn, Chief Gunner Cole and the others in the main section. After he saw to it that everything possible had been jettisoned, the lieutenant went to the nearest girder and clutched it tightly, watching trees whizzing past just below him. He later recalled there was an air of unreality about it, as though he were inside a low-flying plane whose pilot was hedgehopping. The dangling engines struck the ground and were wrenched loose. Momentarily lightened, Shenandoah's main section rose 100 feet into the air and drifted toward a clump of trees. It cut through them, splitting timbers and leaving a swath of branches and chunks of aluminum girders. All the men inside managed to hang on as the great crumpled section of Shenandoah settled onto the earth in a mass of twisted wreckage, and gas whooshed from punctured cells. The men began climbing down girders, sliding from ropes and jumping to free themselves as the choking gas burst from the crumpling bag.

Lieutenant Richardson was the last to leave that section of the ship. Gasping for breath, he started down a collapsible ladder one of the men lowered just after the ship touched the trees. Halfway down, the rungs folded and he became trapped. And at that moment a gust of wind caught the torn silk envelope, billowing up underneath it and shifting the wreckage onto its side.

"The Lieutenant is stuck!" shouted one of the men and started back to rescue the helpless officer. But there was no time; the main section was heeling over. At the last minute Richardson wrenched his hands loose and fell. As he did so, his foot caught on a loose cable and he was dragged 20 feet before helping hands freed him and he stood clear.

It was 6 a.m. In the cold, rainy dawn, men limped away from the wreckage, coming together atop a steep knoll just beyond it. None of them seemed to have been badly injured, and so far no bodies had been found in the twisted mass of the main section. But the control car – that was another matter.

Farmer Gamara arrived at the knoll where the men were gathered, running as fast as he could. He pointed beyond the hill and said: "Part of the wreckage is over there. It looked like a large bomb. It fell very fast. But I do not know what happened to the other part. It just floated off like a big balloon." Gamara was referring to Shenandoah's nose, which had separated from the rest of the airship.

Lieutenant Richardson studied the wind and said matter-of-factly: "It must have blown south. Poor devils, I hope they got off as well as we did." There was nothing he could do other than start walking toward where Gamara indicated that the control car had crashed. Richardson knew what he would find.

At that moment, the dirigible's nose section was still high in the air, perhaps 1,500 or 2,000 feet up. Commander Rosendahl, the second officer, found himself in charge of a wild, uncontrollable balloon, rising and falling in the air currents. With him were seven other officers and men: Lieutenants W. H. Meyers, E. W. Sheppard and J. B. Anderson, Chief Machinist's Mates Halliburton and Shevlowitz, Chief Rigger J. F. McCarthy, and U.S. Army Colonel J. C. Hall, who had been aboard as an official observer.

Hall was still recovering from a hair-raising rescue. When the bow section broke away, he found himself stranded at the end of an aluminum girder, hanging 30 feet away from the nose section. He inched his way along the girder and was eventually helped to safety by the two machinist's mates. But his new place of refuge was a doubtful, for the bow section was still high in the air.

Rosendahl immediately took charge, with the assistance of Lieutenant Anderson. "Start valving by hand!" the commander ordered. "We've got to lose altitude." It was a dangerous maneuver, for the nose section had no ballast to drop if they started descending too quickly. "Lieutenant Anderson, rig trailing lines with anything you can find that will catch hold when we reach the ground. Our forward speed in this wind must be about 25 knots."

Anderson and the chief rigger started securing all the ropes they could find to the framework, attaching twisted chunks of metal and anything else they could wrench loose to the trailing ends. Rosendahl studied the bulging balloonets, or gas cells, above him. Each one was attached independently to the framework and controlled separately. By 6:10, he had watched the hand-valving start to take effect, as the skin of the cells became wrinkled, showing gas had been let out. By that time the airship's nose section was only 200 feet above the ground.

Meanwhile, four men in the crew space amidships looked forward and saw nothing but empty space; the bow section had broken off and was ballooning high above them. Almost at once there came a new tearing and ripping aft of them, followed by a sickening downward lurch as the ship broke again, this time just forward of engines 1 and 3, at Frame 100. The Shenandoah was now in three parts.

In the center section, smallest of the three, the gas bags had collapsed, and, weighted by engine gondolas 2, 4 and 5, it dropped "like an elevator with no brakes." To the four sailors in its tiny crew space it seemed that they must surely follow the control car down to earth. But weakened girders snapped again, the two engine cabs wrenched free, and the little helium remaining slowed their fall. Jagged wreckage dangling at both ends, the center section smashed into the side of a little hill, skidded down a slope, crashed into some trees, and stopped. The four men in the crew space were injured but alive; four Aviation Machinist's Mate mechanics – three of them in the engine cabs – were killed.

The critical moment was approaching when the lives of the men in the now free-ballooning bow section would depend half on the whims of fate and half on their ability to ease the wreckage gently to earth. Two of the lines had already started trailing, but they didn't catch on anything that would slow down the runaway nose section. The wind was too strong, whipping the structure along before it at 20 knots, as it bucked like an angry steer trying to dislodge an unwanted rider.

"Our jury-rigged anchors won't catch hold, Sir", shouted Chief Rigger John McCarthy. "We've secured every piece of line we can lay hands on, trying to check her speed before we ram a building or plow into a hillside."

As Rosendahl studied the landscape whizzing by, trying desperately to think of some way to slow their uncontrolled flight, he froze. At the end of one line an object he had taken to be a chunk of framework turned out to be a man. For a few moments the dangling figure swung gently back and forth not more than 50 feet above the ground, and then the whole nose section flipped upward in an air current, gyrating wildly, and the man at the end of the line began spinning in ever-tightening circles.

"Good God, who's that?", demanded the horrified Rosendahl. "Lieutenant Sheppard, Sir", said McCarthy. "He thought maybe he could get low enough to skid to the ground and snub the trailing end of the line around a tree trunk. I told him it was suicide, but he went anyway."

Whatever chance Sheppard might have had, it was gone. The line whipped him back and forth. Then, with a sudden, vengeful snap, the wind flipped him from the girder. The rest of the men still on board saw him flung to his death in the trees below. A few minutes later the nose descended to about 100 feet, where he might have fallen and suffered nothing more than a few broken bones.

At 6:32 miners Ode Gordon and Herbert Poling were walking along a road near Sharon in the rainy dawn when a strange and terrifying sight greeted them. Dead ahead, out of the mist, loomed what at first seemed like a dirigible, apparently coming in for a landing. Then they noticed that most of the ship was missing. The wreckage gyrated back and forth, revealing twisted girders and naked insides.

“Look at that! There are people on it!” shouted Gordon. “They’re in trouble.”

For a minute the strange craft slowed its flight, hovering directly over the astonished miners. From about 75 feet above them, a man shouted down: “Snub the lines! Snub them on a tree, rocks, anything you can.” Gordon and Poling raced to reach the dangling ropes. They yanked futilely on them, trying to check the nose section’s flight with their own tiny strength.

“Wrap them around something! You can’t hold us”, came the orders from above. The two miners rushed toward a group of small trees, but before they could make it, the nose started moving off on its wild course again, entangling the two men on the ground and dragging them along with it. They were carried along some 200 yards before they could get loose, beaten and bruised.

Gordon lay still for a few minutes, stunned. Poling sat up, watching the wreckage of the nose careening onward. “It’s going to crash into the Nichols farm!” he shouted. “Come on! Maybe we can save a couple of those poor devils from the wreck.” He got shakily to his feet and stumbled toward the spot.

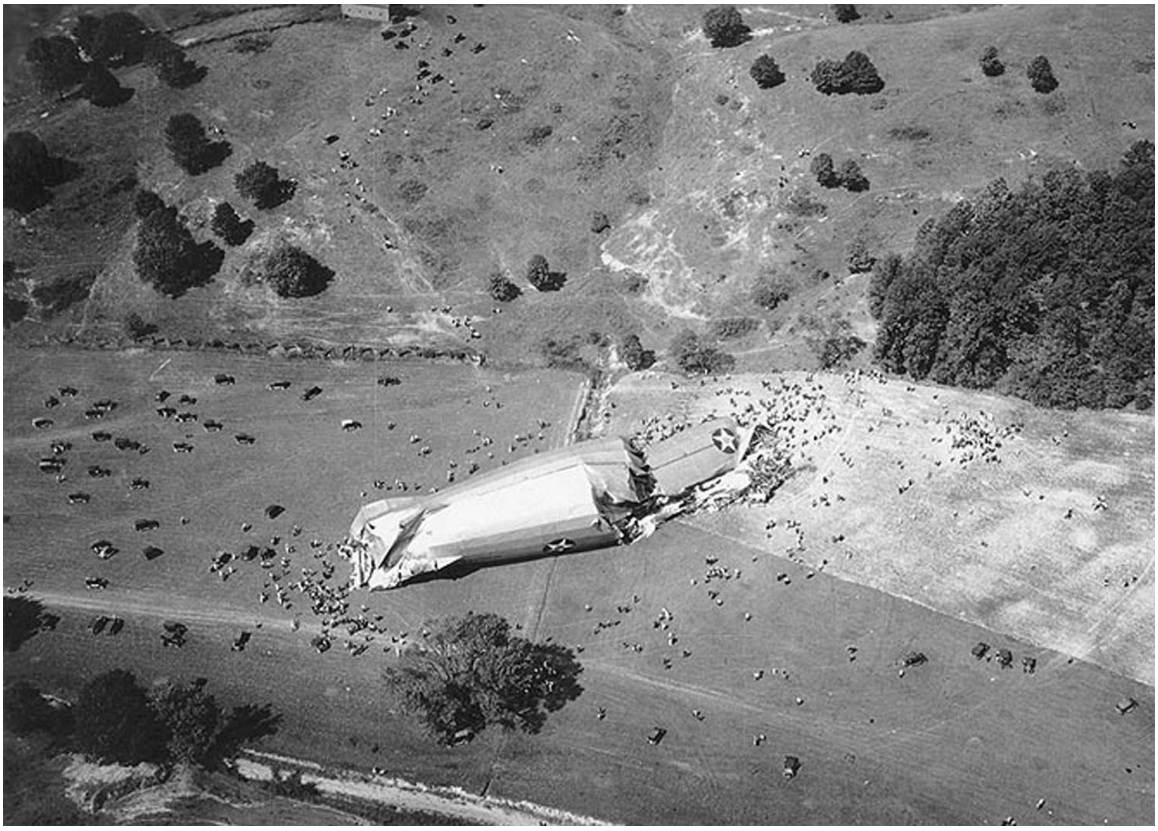
At 6:30 Ernest Nichols was in his yard doing chores when he heard shouting. Strangely, the voices seemed to come from overhead, and at this instant he saw the battered nose section bearing down upon him. It struck an outbuilding with a splintering crash, momentarily stopping dead in its frantic flight. Then it slowly rose, and the wind gathered behind it to push it forward once again. Above Nichols a wild-eyed man called instructions down to him, his voice breaking in desperation.

Nichols quickly seized one of the trailing lines and ran around a large tree with it, securing the end more and more firmly with each turn. In the branches above him there was a crashing sound, and the chief rigger, McCarthy, half slid down the rope, then fell to the ground, fracturing his leg and shoulder.

The nose section, suddenly checked in its flight, careened forward and smashed into the ground with a force that whipped Commander Rosendahl loose from the girder he had been clutching. Pitched through the silk fabric, Rosendahl landed on the soft, rain-soaked ground. The remaining five men were jolted loose in the same manner and spewed forth onto the ground. Miraculously, all were unhurt save McCarthy.

“Secure all lines!” Though shaken, Rosendahl swung into action with the instinctive efficiency bred by his years in lighter-than-air craft. “Anderson”, he said, “release all valves you can reach.”

Rosendahl’s first duty was to save what he could for inspection during the Navy investigation he knew would soon follow the disaster. Then he went over to Nichols, who was trying to help the injured chief rigger.



By 8 a.m., Rosendahl had reached the spot 12 miles away where the main section crashed and counted the survivors. There were 29 in all, with only two badly injured.

“No one survived in the control cabin after it hit, did they?”, Rosendahl asked Lieutenant Richardson as they walked toward the crumpled wreckage. “No sir”, replied Richardson. “One man – Mazzuco, from one of the forward engine cars – he lived for a few minutes. Even sat up and spoke a few last words. But he didn’t have a prayer. His entire body was fractured in the fall”

“And Lansdowne…”, Rosendahl choked for a moment, then he went on, “Could you identify him? I’ll have to phone his wife.’

‘Yes, but only by his uniform. The forward part of the cabin was smashed like a falling eggshell.’

Rosendahl felt shaky in the legs as the full scope of the tragedy began to hit home. If he had been two minutes later in leaving the control cabin, he would have been too late. His broken body would have been lying in the wreckage near Lansdowne’s.

“What is the date?”, Rosendahl asked. “September 3”, replied Richardson wonderingly. “Did you know Lansdowne’s transfer orders came through?”, said Rosendahl. “He was to go on sea duty on the 15th, after we got back.”

First came the rescuers. They did everything they could to make it easier for the dazed survivors. But soon, over the rutted back roads, in buggies, buck-boards, and broken-down Model-T Fords, came the curious. Many were full of pity; others treated the disaster like a picnic.

By noon, thousands of looters and souvenir hunters had torn almost all the covering off both the larger sections of the ship. Women came away from the wreckage staggering under yards and yards of fabric they had ripped from the frame. The looters were armed with knives, hatchets, pliers, even wrenches. They went away with the ship's logbooks, with fragments of girders up to eight feet long, instruments from the control car, intra-ship telephones, and blankets. Anything they could carry.

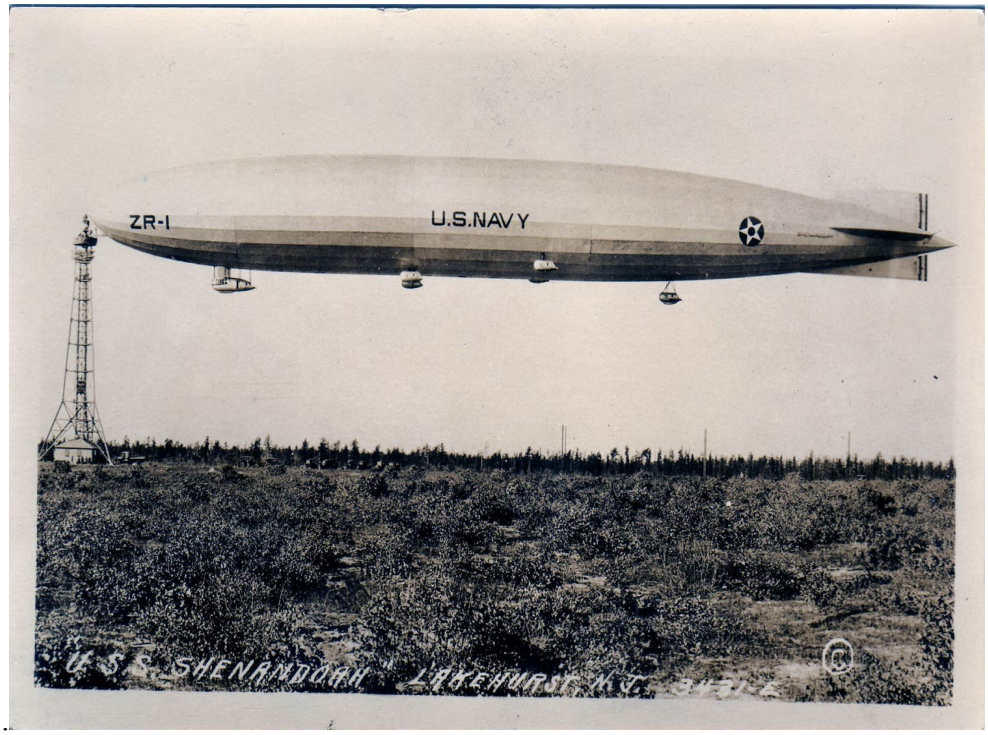
The still-dazed officers and enlisted men tried to keep guard. When Major Frank Kennedy, an army airship expert from nearby McCook Field, arrived to help he found Frank Masters, one of the Shenandoah's young riggers, trying desperately to guard the control car. Masters was nervous and confused. As he rushed from one point to protect another, a group of looters would dart in behind his back. He had had nothing to eat for many hours. Sympathetic farmers offered to take him to breakfast, but he refused to leave his post. Soon the two main sections of the ship, miles apart, looked like skeletons picked to the bone.

At nightfall, in spite of armed national guardsmen who threatened to open fire, the looting continued. By morning the control car too had been picked clean. Many instruments had been stolen, all the toggles ripped out, everything movable torn free. Only the naked hull of the gondola was left, and even that had been moved twenty yards from the place where it had struck.

It had taken the "Daughter of the Stars" three hours to die piecemeal, and just a day to be stripped bare. But her story was far from over.

Even before the survivors' train reached Lakehurst it became evident that the disaster was to be a cause célèbre. In bold headlines Mrs. Lansdowne was quoted as accusing Secretary of the Navy Curtis D. Wilbur of forcing her husband to take the flight for political purposes.

On September 4, a second sensational charge came from Captain Anton Heinen, a German airship expert who had taught many of the Shenandoah's men to fly, and who, on board with only the duty section, took command of the ship when it broke away from the mast in 1924 and safely returned it to lakehurst. "I tell you it was murder to take that ship out," he said to a reporter from the Philadelphia Evening Inquirer. The original eighteen helium safety valves, he explained, had been reduced to eight. The ship had broken in two because the expanding gas, with insufficient outlets for escape, had crushed the frames with the extreme altitude changes. The victims, he declared, "gave their lives for nothing, to save precious helium, and to serve the egos of incompetent fools."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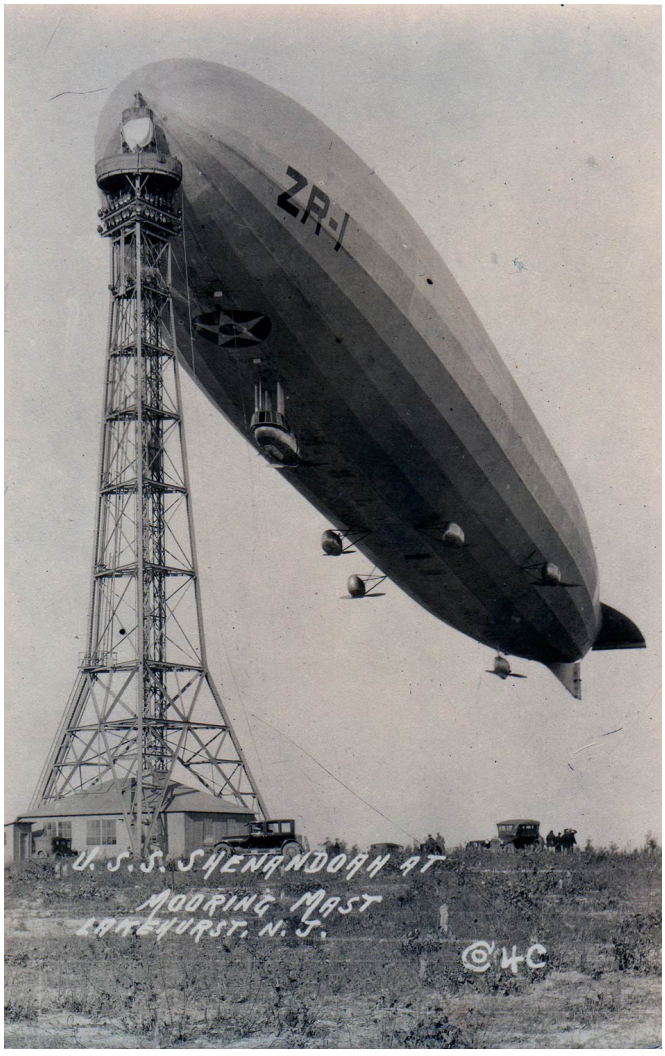
U.S.NAVY
U.S.S. SHENANDOAH LAKEHURST, N.J.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U.S.S. SHENANDOAH AT
MOORING MAST
LAKEHURST, N.J.
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On September 21 at Lakehurst, a Navy Court of Inquiry opened hearings to investigate the Shenandoah crash. The inquiry almost turned into a brawl when Captain Heinen was called upon to explain his inflammatory remarks. The following week the proceedings were transferred to Washington, and there, on October 9, Mrs. Lansdowne made her first appearance, dressed in deep mourning. Most Navy people thought the attractive 23-year-old widow would repudiate the statements attributed to her by the newspapers. Instead, she bluntly repeated them.

On the evening of November 7 the judge advocate (in a naval court, the prosecutor) paid a surprise visit to Mrs. Lansdowne at the Washington home of her uncle, where she was staying for the duration of the hearings. He said the Navy would like her to appear again.

The next day the wife of the Lakehurst commandant invited Mrs. Lansdowne to lunch at the Mayflower. As they were leaving the hotel, the older woman slipped a piece of paper into her hand, saying it was something which the judge advocate thought she could use in court.

It was a draft of a statement declaring that Mrs. Lansdowne had changed her mind; that her husband had regarded the Shenandoah as a man-of-war and that he had been ready to use it at any time regardless of weather. Furious, she tore it up.

Three days later, on November 11, Mrs. Lansdowne appeared once more at the Navy hearings. She and her counsel, Joseph E. Davies, walked into a hostile courtroom. The usual tensions of such a hearing had been heightened by the fact that at the same time, in another part of the capitol, the Army's court-martial of Colonel William ("Billy") Mitchell was in progress. (At Mitchell's request, Mrs. Lansdowne appeared at his trial and told the court about what she regarded as the Navy's attempt to influence her testimony.) The glare of publicity from the two trials had put the services on the defensive, and at the Shenandoah hearing the Navy wives who made up the majority of the courtroom audience were on the Navy's side.

Davies (later United States ambassador to Russia just before World War II) insisted that he be allowed to advise his client. The original judge advocate had resigned in order to appear as a witness at the Mitchell trial and answer Mrs. Lansdowne's charges. A successor, Major Henry Leonard of the Marine Corps, had been appointed, and at this juncture he rose to object. This was not a civilian court, he declared, and Mrs. Lansdowne was merely a witness.

Davies told his client not to testify without his advice. The presiding officer, an elderly admiral, warned Davies to be quiet. Davies insisted on his client's rights. The admiral, losing his patience, ordered him to be quiet or leave. When Davies did neither, the admiral reluctantly turned to the marine guard and said, "You will remove the gentleman from the court."

"My client is entitled to counsel!" shouted Davies, but the marine grabbed him by the collar and escorted him, still protesting, from the courtroom.

For three hours Mrs. Lansdowne was questioned. Every time Major Leonard scored a point there would be a burst of applause from the Navy wives. Whenever Mrs. Lansdowne scored, the incensed women would boo and hiss. Leonard pointed out that there had been a "prudential" clause in Commander Lansdowne's orders that would have allowed him to postpone the flight if he had thought conditions warranted it. But Mrs. Lansdowne, who was managing very well without a lawyer, seized upon the

conclusion of the clause, which read, "… remembering, however, that this route will be published in the press and that many will be disappointed should the Shenandoah fail to follow the approved schedule."

"That," she said, "is the pressure that is brought on officers in the Navy Department."

Mrs. Lansdowne was excused. The court never recalled her.

The inquiry ended two weeks later. Most experts agreed that the Shenandoah 's gas cells had not ruptured, but that the ship had been torn apart by an unfortunate series of natural forces.

Commander Lansdowne and the others who had died with their ship had not made a useless sacrifice. Even in death the Shenandoah had helped aviation take a long step forward. It is true that the United States government gave up on the rigid dirigible after the crash of the American-built Akron in the Atlantic off Barnegat Light in April of 1933 and that of the Macon, her sister ship, in the Pacific off Point Sur, California, two years later. And when the Hindenburg, Germany's great commercial airship, burned horribly at Lakehurst in 1937, the day of the great "rigids" seemed to be over.

But United States experience with the Shenandoah and other dirigibles contributed significantly to our success with the smaller, nonrigid blimp. Ridiculed as the "rubber cow" and the "poopy-bag," the blimp nevertheless played an important role in World War II – blimps helped drive enemy submarines from the Strait of Gibraltar, patrolled the United States coast line for lurking U-boats, and helped clear mines from the waters south of France in preparation for D-day. Today blimps are an important component of our early-warning defense net and of our antisubmarine forces.

The men who flew the graceful rigids and lived to remember them, however, remained loyal to them. Commander Rosendahl, who retired as a Rear Admiral, argued strenuously that they deserved another trial. As recently as 1954, he and Paul Litchfield, chairman of the board of the Goodyear Tire and Rubber Company, which built the Akron and the Macon, were fighting for rigid dirigibles both for commercial and naval uses and as flying laboratories for testing an atomic aircraft engine. In Germany, the last commander of the Hindenburg, Captain Max Pruss, and other airship advocates were proposing new passenger and cargo dirigibles, using helium in place of hydrogen, to provide an intermediate service between the slower surface liners and the faster airplane.

Yet memories of such epic disasters as that of the Shenandoah are not easily forgotten. The romantic dirigible, outmoded almost in its infancy by the fantastic onrush of aerial invention, was even in its own time a craft dogged by ill luck.

Lieutenant Commander Charles E. Rosendahl